Public-Private Funding for Infrastructure Projects – Thirty Years of Confusion

Financement public-privé pour les projets d'infrastructure - Trente ans de confusion

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Introduction

The financing and building of the Channel Tunnel was heralded at the outset as the demonstration that the private sector could undertake major infrastructure projects more cheaply and more efficiently than the public sector. The problems surrounding completely private financing of public infrastructure as well as increasing pressure on public budgets have led to the belief that some form of public-private partnership is the way forward. By marrying the best elements of the public and private sectors a more effective vehicle for delivering public infrastructure could be devised. But this too has been found wanting. That the reality was rather different from the hope has been well documented; this paper identifies some of the issues raised and suggests lessons to be taken forward.
Public versus private funding of infrastructure

The use of public funds to provide public infrastructure was strongly criticised from the early 1980s. The principal argument was that the use of public funds, provided from taxation or through the public sector’s ability to borrow more cheaply, crowded out private investments that were inherently more productive. At a time when there was considerable liquidity it was argued that the private sector could provide public infrastructure more efficiently than bureaucratic public-sector agencies. The private sector would be more aggressive in seeking alternative ways of providing infrastructure and thus more innovative. Even if financing costs were higher, the overall gain in productivity would lead to a more efficient overall outcome.

This crowding out hypothesis was criticised, amongst others by Aschauer (1989) in a seminal article that sought to demonstrate that better public infrastructure, even if publicly funded, would raise private sector productivity more than any losses from crowding out. Although Aschauer’s paper has been largely discredited in terms of the precise econometric findings, the general argument has been supported in many subsequent studies.

Public-sector budget constraints in the 2000s have led to a renewed search for alternative sources of finance. The private sector has the advantage of potentially greater efficiency in delivery, and delivery free of public spending limits that can aid more timely delivery of projects. The main question has been how best to harness the public and private sectors’ interests in such a way as to ensure that risks are borne appropriately by each party to ensure that potentially lower overall project costs are not compromised by the reliance on public sector guarantees and bail-outs.

The question of overall productivity enhancement has now become a clear element in infrastructure project appraisal with the consideration of the wider economic impacts of projects becoming more routine.
The Channel Tunnel

The construction of the Channel Tunnel was supposed to be the great example of private sector infrastructure provision. The resurrection of the project for a fixed link across the Channel in the early 1980s was due, at least in part, to private sector representations to the UK Government (Holliday et al., 1991; Gourvish, 2006). There were divergent views of the public sector’s role in providing infrastructure in the UK and France. France had embarked on a public-sector led construction of a high-speed rail network and regarded such projects as symbols of national progress. The UK under the Thatcher Government was busy privatising industries and utilities. Curiously a window of opportunity arose that both Governments saw advantage in – a major infrastructure project with a European dimension that could serve to demonstrate both the pride in “grands projets” and the power of the private sector.

However, it has to be questioned how far the Channel Tunnel is genuinely a private sector scheme? Whilst the legislation specified that there was to be no direct public-sector funding, the Concession Agreement placed certain constraints on the successful bidder, although no control over prices, not least to placate the mainly private sector ferry competitors. However, Government interference arguably went further with clear involvement of Central Banks during the key flotations, extensions to the concession period, and the public-sector provision of key connecting infrastructure, road and rail (Marcou et al., 1992). In both the UK and France there were regional development initiatives to try and assist the local regions to adjust to the existence of the Tunnel.

The Tunnel through its complex regulatory structure of an international Treaty, Acts of Parliament, Intergovernmental Commission and Concession Agreement is essentially an early form of public-private partnership (PPP) and is perhaps best viewed in this way.
Development of the PPP concept

There is no single model of a PPP. Concessions, franchises, the private finance initiative in the UK (PFI) and pure partnership models are all ways of defining PPPs (ITF, 2013). The common element in all of these is that they attempt to attribute risks appropriately to the sector that can bear them best, consistent with achieving the most efficient outcome. A key element in this is whether risks are being shared or shifted and if an attempt is made to shift them from the public to the private sector how far they are absorbed by the private sector or simply shifted back. This has led to many cases of PPP agreements subsequently having to be renegotiated (ITF, 2017).

Managing risk effectively is the key to successful partnerships, but all too frequently PPPs have demonstrated the absence of a genuine partnership.

Sources of risk

There are several sources of risk in the development of a PPP: demand or revenue risk; construction and operational risk; financing risk; planning risk; and regulatory risk.

Demand or revenue risk reflects the forecasting problem of future demand and hence the revenue stream and thus who should bear any shortfall or capture any greater the profit? We know that the accuracy of forecasts of demand for many transport projects is suspect (Fig. 1), and the Channel Tunnel has been no exception to this (Anguera, 2006).
The solutions to this can involve complex arrangements to cap excess profits whilst providing support for shortfalls, so-called cap and collar arrangements, or for the public sector to provide revenue for the private sector through for example shadow tolls or availability payments that ensure that appropriate capacity is provided.

Construction and operational risk relates to the more technical aspects of providing infrastructure. Many new infrastructures are essentially unique, the asset specificity problem, so that forecasting construction costs accurately is as problematic as revenue forecasts.

The risks associated with financing projects relate in part to the choice between equity and loan finance. Equity finance is often seen as preferable as it involves investors in the long-term success of a project. However, as was seen with initial privatisations, many investors look for early returns and cash in investments so that ownership becomes more remote. Similarly, debt can be sold on. Without government guarantees the cost of borrowing can be high for projects that have a long gestation period without any revenue.
It is for this latter reason that governments sometimes transfer existing revenue earning assets to the private sector partner to provide a revenue stream during the construction of a new project.

Private sector operators taking responsibility for new projects may also face delays and changes associated with planning that adds to the risks. To minimise these involves the building of trust between the private partner and relevant public agencies, but where the passage of legislation is required a risk will always be present.

Finally, a private operator faces the risks of changes in regulation. This may involve the public authority changing the competitive structure of a market, exclusive rights granted at the start of a concession could be changed, the regulations affecting pricing could be changed in response to public concerns about excessive profits, or poor performance leading to the public authority terminating the contract. Figure 2 summarises the issues relating to the characteristics and management of risk.

**Figure 2. Constraints on Risk Allocation and Mechanisms for Limiting Risk Exposure** (source: International Transport Forum, 2013).

<table>
<thead>
<tr>
<th>RISK CATEGORY</th>
<th>CONSTRAINTS ON ALLOCATING RISK TO PRIVATE PARTNER</th>
<th>MECHANISMS FOR RETAINING OR SHARING RISK</th>
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<td>Construction</td>
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<tr>
<td>Demand/traffic revenue</td>
<td>-</td>
<td>Availability payments; Revenue caps and collars; Exclusive concessions.</td>
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Alternative models

Faced with the problems that have arisen in PPP arrangements, alternative models have been suggested. One of the major problems in infrastructure, as with most public utilities, is understanding the value of the assets, not least given the asset specificity problem such that there is no market in assets to provide a valuation. Hence the move to a Regulated Asset Base (RAB) model presents problems as does the use of pension and sovereign wealth funds. This also covers the difficulty of knowing how best to charge users where tolls, shadow tolls and availability payments have all been suggested (see ITF (2013) for a useful discussion).

Are PPPs efficient?

The key question is whether the PPP method lowers or raises overall costs? This determines whether there is any need for public sector support and that raises the questions of the conditions for determining value for money. Most models suggest that toll finance with the private sector taking on the revenue risk, together with a significant equity holding and the transfer of construction and design risks to the private partner provides the most efficient solution. But that assumes that the project is independent of any network effects, so that, for example in the case of the Channel Tunnel, as with any isolated link, the dependence on connecting roads and rail lines is paramount. Where these are provided separately there is a clear problem in ensuring the most efficient solution.

But PPPs can also face severe constraints where the volume of private finance needed exceeds availability and this often leads to a recourse to more expensive debt finance. This is when attempts are made to lessen demand risks through alternative means of payment such as availability payments.
Successes and failures

PPPs have perhaps been most successful in non-transport areas such as health care, prisons etc. Transport examples in the UK include:

- the national rail network initially through Railtrack, although this was an attempt at a purely private sector solution and Network Rail;
- the Dartford Crossing, an example where an initial infrastructure was transferred to provide a revenue stream during construction of a new bridge, and where the initial concession was able to be terminated early due to the successful amortisation of the investment in a shorter period;
- London Underground, where the infrastructure was transferred to a number of separate private partners responsible for maintenance and enhancement, but which ultimately failed to deliver value for money;
- Channel Tunnel Rail Link (HS1), where a series of renegotiations had to take place due to poor forecasts (see Fig. 3) and inability to determine the value of the project, network effects being particularly relevant here as well as local economic development plans, but which has subsequently been sold and resold (National Audit Office, 2001; 2012), although it provided a successful domestic service (Fig. 4).

The common features of these examples are that they all, except the Dartford Crossing, relate to rail, where we have seen future traffic is difficult to forecast. Each also depends on a complex organisational structure where the lack of genuine partnership is evident as the public sector aims both to distance itself from detailed questions in the belief that the private sector can best solve these more efficiently, but also to keep control over the need for public accountability and value for money.
Figure 3. **CTRL Passenger Forecasts and Actual International Passenger Numbers** (source: Booz, 2012).

PPP Bidding Phase Forecasts

Forecasts made at time of Refinancing

Figure 4. **Domestic traffic on HS1** (source: Southeastern railway).

Southeastern Highspeed Journeys
13 Rolling Periods

Mainline + HS Journeys
13 Rolling Periods

- Mainline
- Highspeed
So did we learn anything from the Channel Tunnel story?

The basic message of this short note is that in the 1980s it was firmly believed that public infrastructure could be provided profitably by the private sector. Not only would this be at lower cost than by the public sector, it would be delivered in a more timely and efficient manner. Experience with the Channel Tunnel suggested quite soon that it was not that simple. Should public infrastructure be entrusted to the private sector without more public-sector involvement? Could harnessing the advantages of both sectors through a PPP be a way forward?

Experience with trying to find the most appropriate organisational structure both to deliver and to manage infrastructure has not really led us to a clear conclusion. PPP agreements frequently need renegotiation suggesting that the ability to place risk effectively is limited (ITF, 2017). They also lead to confusion as to who is ultimately responsible for failures to deliver the promised service level with the final user often being uncertain who to blame (or from whom to claim compensation) and the various parties being only too glad to use the opportunity to shift that blame between them.

Ultimately it raises the question thirty years on as to whether and how we would deliver the Channel Tunnel today? One possible answer is that if the opportunity of that relatively small financial and political window had not been seized we would still have been waiting. It is not clear that experiences with major infrastructure over this period would have provided a clear and unambiguous solution.
References


